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SIR LAUDER BR...

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VOL. XLV

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15.

SAINT BARTHOLOMEW'S HOSPITAL REPORTS.

ON THE TREATMENT OF A CASE OF DISSEMINATED SCLEROSIS.

BY

SIR LAUDER BRUNTON, M.D., D.Sc., F.R.S.

IT so often happens that a new remedy gives wonderful results when tried for the first time, or even for the first few times, and then seems to fail either in the hands of its introducer, or in the hands of those who follow his example. In consequence of my knowledge of this fact I have been deterred from publishing the following case, for I thought that I should get other similar ones, and be able to make a more extensive trial of the plan of treatment before writing anything about it. Cases of disseminated sclerosis fall more generally into the hands of those who have especially devoted their attention to neurology, and I have not had any similar case under treatment since. My reason for publishing it now is that a short time ago the only son of a great personal friend of my own was attacked by symptoms of the disease. He was under the care of specialists, but did not seem to make much progress. I told my friend about the case I am going to describe. The boy was put on the same treatment, with the result that he made a rapid recovery. It is possible that others, learning of the treatment, may give it a trial, more especially as it is one of great simplicity. It can do no harm, and may do great good. The plan of treatment acquires, perhaps, an additional interest from its being the outcome of pharmacological research. Some years

ago Dr. Cash and I made a research[1] on the physiological action of a number of the benzine compounds. We found that some of these compounds produced in frogs symptoms of disseminated sclerosis, so that all the movements, instead of being quick, strong, and exact, were slow, undecided, and tremulous. The best known of all the benzine compounds is carbolic acid, in which the hydroxyl group takes the place of the hydrogen in the first atom of the benzine ring. It is well known that while carbolic acid has a powerful poisonous action, sulpho-carbolates have a very slight one, and that the free administration of sulphates in a case of carbolic poisoning will frequently antagonise its action to such an extent as to save the life of the patient, who would otherwise have succumbed. The fact that in cases of sclerosis of all kinds there are slight variations in the intensity of the symptoms from time to time, makes it probable that, although these symptoms depend to a large extent upon organic changes in the nerve-fibres, they are none the less influenced by some temporary conditions of the blood, by which they may be either increased or diminished. The nature of these changes in the blood we do not know, but it seems not improbable that they may be due, at least in considerable part, to auto-intoxication. From this view it is but a step to the idea that not only the symptoms but the organic changes in the nerve-fibres may be due to poisoning, and if so, the similarity in the symptoms observed in patients to those noticed in frogs by poisoning in the benzine compounds would point to the probability of the poisons in man likewise belonging to the benzine series. The next idea was that if this were the case the poisons, whose exact chemical nature is unknown, might possibly be antagonised like carbolic acid by means of sulphates. Acting on this supposition sulphates were administered in full doses, with the result that the patient, who was going steadily from bad to worse in spite of medicines that were likely to benefit him, began to improve at once under the action of sulphates, and in about three months was well enough to go to the Convalescent Home at Swanley. It will be seen that the notes of the case are very carefully taken up to the end of the year in which he was admitted, but that a new set of clerks came on at the new year, and no further notes can be obtained. Whether the gentleman who came on duty at the beginning of the year carried them away, or what has become of them, I do not know.

My friend's son has remained in very good health, and has increased very considerably in strength.

[1] Brunton and Cash, Phil. Trans., 1891, vol. 182, B., p. 548.

The symptoms which occur in disseminated sclerosis are so very trying, and the outlook seems so hopeless, that I may perhaps be excused for publishing this case, very imperfect though it is, on the mere chance that some one else, by the free administration of other sulphates, may obtain similar good results in a like case.

The case of which I append the notes was that of a brickmaker, H. B., aged 22, who was admitted to St. Bartholomew's Hospital at the end of August 1899, with disseminated sclerosis. He had had influenza eighteen months ago, and then again twelve months previously. There was no history of syphilis. He was quite well till four weeks before admission, when his legs gradually became weak, and two weeks before admission he lost the power of walking, although he could still stand. At the same time the left arm became progressively weak, and slight difficulty of articulation occurred. A week before admission he began to suffer from frontal headache, with aching in the back and neck, and numbness, with pins and needles, in the left arm. Micturition was easy, but felt as if it continued after it had really ceased. His condition on admission, and also the rapid progress of his case from bad to worse, will be seen from the clinical abstract, as well as from the notes of his case. On admission he had well-marked weakness of both legs and of left arm, with intentional tremor, affecting chiefly the left side. Although there was no history of syphilis, he was put upon iodide of potassium and aperients, but under these medicines the weakness of the left arm increased, and wasting of the muscles of the left hand appeared. At the beginning of October he lost to a certain extent the power of retaining his motions, and urine sometimes passed without his knowledge. The intentional tremor became very much more marked, so that it was almost impossible for the patient to feed himself; and the difficulty of swallowing, which had been noticed at the very beginning of his illness, and which was much improved at the beginning of October, again became very much worse, so that he could hardly swallow at all. On November 3, 20 grs. of sodium sulphate were given three times a day, and this was increased on November 14 to 40 grs. and on the 17th to 1 drachm three times a day. On the 28th his gait had already improved. On December 17 the dose was raised to 70 grs. of sodium sulphate three times a day. On December 24 a drachm of sulphate of magnesia, with 10 minims of dilute sulphuric acid, was commenced. Under this treatment he began to improve very rapidly, and although the notes from this time onward are unfortunately lacking, the

intentional tremor became very much better; he was able to swallow and speak, and indeed improved so rapidly that although at the end of October it seemed that he was likely to die before Christmas, yet on February 18 he had improved sufficiently to be sent to the Convalescent Home at Swanley.

The theory on which the treatment was based may be quite wrong, yet it is interesting to find that a few experiments on frogs should have yielded so much benefit to two patients at least, and possibly to others who may suffer in the same way as they. My best thanks are due to my house physician Dr. Croft Hill, to my clinical clerk Dr. Finigan, and to Mr. N. Gerald Horner, but for whose kindness in obtaining the notes for me, I should have been unable to publish the case.

Clinical Abstract of Case.

First week in August.—Weakness of legs.

Middle of August.—(1) Lost power of walking, but could stand; (2) weakness of left hand and arm; (3) slight difficulty in articulating clearly.

Seven days before admission.—Frontal headache; pains in back and neck; left arm numb, with pins and needles.

Influenza eighteen months ago, again twelve months ago; no syphilis.

Condition on admission.—Nystagmus; pupils equal, react to accommodation, not so readily to light. Facial muscles stronger on the right side. Palate moves well. Sensation of face normal. Speech not scanning.

Arms.—Left side not so strong as right. Extensors of left forearm weaker than those of right forearm; fine tremor of hands on extension of arms. No wasting nor flabbiness of muscles. Sensation blunt in left arm. Pain, touch, heat, cold, differentiated. Slight intention tremor of left arm, and slight inco-ordination of the same.

Legs.—Gait slow and deliberate. Left great toe scrapes the ground, no inco-ordination; stands with eyes shut. Knee-jerks excessive both sides—more so on left. Ankle clonus left side, not right side.

Sept. 27.—Increased weakness of left arm. Wasting of thenar eminence and first dorsal interosseus of left hand. Ankle-clonus and thigh-clonus left side, not on right side.

Nov. 3.—Treatment with sodium sulphate begun, gr. xx. t.d.s.

Nov. 14.—Dose increased to gr. xl. t.d.s.

Nov. 17.—℥i. t.d.s.

Nov. 28.—Gait improved.

Dec. 17.—Dose, 70 grains t.d.s.

Dec. 24.—Magnesium sulphate begun.

Feb. 18.—Patient discharged. Gait much better; walked better. Left foot scraped along floor much less.

Herbert Bentley, æt. 22, brickmaker, was admitted to Luke Ward, August 29, under Dr. Brunton, complaining of loss of power in legs and left arm.

The patient was quite well till four weeks ago, when his legs gradually became weak, and two weeks ago he lost the power of walking, though he still can stand. No stiffness of legs complained of. Weakness of left arm began two weeks ago, and has progressed. Slight difficulty of speech two weeks; cannot articulate so easily or rapidly as usual. Headache (frontal) and aching in back of neck one week. Patient drags left foot. Left arm feels numb, with pins and needles in fingers. No bladder trouble, but feels as if micturition still continues after it has ceased. Bowels open once a day; in usual health, open twice daily. No pains in back. Sweating at night the past three weeks.

Past History.—Influenza twice, eighteen and twelve months ago. Four weeks ago, just before the present trouble began, suffered with bad dreams for several nights. No other illnesses, but scarlet fever as a child. No history of syphilis. Teetotaller two years.

Family History.—Father well; mother alive and well; three brothers healthy; two sisters healthy. No history of nervous disease.

Present Condition.—Patient is fairly healthy and strong-looking.

Tongue.—Tremulous, very dry down centre and red, coated at sides. Colour slightly sallow. Skin dry.

Temperature, 98.8° on admission, 97.2° same night; pulse, 77.

Neuro-museular System.—Face.—Eyes—Movements natural, accompanied by nystagmus, mostly horizontal, but also vertical. *Pupils* equal and regular; react to accommodation and not very readily to light. Muscles of mastication active; those of right side stronger than left, but uses this side mostly. Facial muscles act on both sides, but are stronger on right; can wink separately with right eye, but not with left (could wink with either). When using *orbiculares palpebrarum* forcibly on both sides, draws his mouth to right side. Can whistle well. Mouth slightly deviated to right when smiling and showing teeth. Palate moves normally. *Tongue* protruded straight. *Speech* not scanning; rather hesitating. Patient slurs syllables in articu-

lating long words. Voice monotonous. Sensation of face normal.

Arms.—Grasp good; on right side somewhat less powerful than on left. Movements of wrist, especially extension, poor on left side. All movements of left arm slow and clumsy, though fairly strong. There is fine tremor of both hands on extension of arms.

Reflexes.—Right side normal; left, no supinator reflex. On tapping the lower end of the ulna, and also other parts of wrist, a contraction of the *pronator radii teres* is elicited. No wasting nor flabbiness of muscles.

Sensation.—Somewhat blunted in the left arm and hand, but not lost. Pain, touch, heat and cold differentiated normally. Intention tremor (slight), and slight inco-ordination of left arm.

Trunk.—Sensation in neck the same on the two sides. From clavicles downwards sensation is somewhat blunted all down left side, but not altered.

Legs.—Gait—Patient walks with caution, taking short steps, and watching the ground. His legs are moved stiffly, and his left great toe just scrapes the ground. There is no inco-ordination, and the patient can stand readily with his eyes shut. Movements of legs and feet quite good.

Reflexes.—Knee-jerks increased on both sides, especially left. Knee-jerks readily obtained by tapping tendon above patella. Ankle-clonus on left side; none on right side. To stimulation of sole there is no response on the left side; extensor response on the right side. *Tensor faseiæ femoris* acts on the left side, not on the right.

Sensation blunted but not altered in left leg; normal in the right leg. Sense of position normal. No loss of control over sphincters.

Heart and Lungs.—Normal.

Abdomen.—Normal.

Urine, 1022; no trace of albumen.

Sept. 4.—Condition as before. No headache.

Sept. 27.—Face and eyes as before, but can now wink with his left eye as well as with his right. Speech perhaps more affected.

Arms.—Complains of increased weakness in the left arm. Muscles are flabby, and in the hand there is distinct wasting of the thenar eminence and of first dorsal interosseous muscle. Reflexes—Pronator as before. Supinator reflex also obtained.

For the past week has had a sensation of "pins and needles" in the fingers of the right hand. Sensation in the fingers is

less sharp than in the rest of the arm. Sensation impaired in the left limb as compared with the right to about same extent as on admission. Tremor and inco-ordination not more than on admission.

Trunk as before.

Legs.—Much more stiffness in left leg and foot, so that patient does not bend his knee in walking, and keeps his leg stiff in front of him.

Reflexes.—Knee-jerks both increased, especially left. On left side thigh-clonus and ankle-clonus readily obtained; on right side neither. There is normal flexor response of toes left side. Right side extensor response of great toe. *Sensation* as before. No wasting. No stiffness of legs.

Oct. 8.—*Nervous System.*—*Face*—(1) Motor—Normal, except that the mouth is slightly drawn to the left when the patient shows his teeth. *Eyes*—Nystagmus as before. Palate normal; can swallow quite well—an improvement on the condition when he was first taken ill, and could not swallow his food readily because "it seemed to lie in the top of his mouth." Speech clear.

(2) Sensation normal. *Arms.*—Motor—Grasps feebler in left hand than right; more so than natural.

Inco-ordination of left hand; intention tremor when picking up articles; not so with right hand. There is wasting of the deep adductors of the thumb and of first dorsal interosseous more so than before. Superficial reflexes as before if patient voluntarily reinforces the same.

Triceps reflex on left side, with suspicion of clonus. Present on the right side, but not so marked.

Sensation.—Complains of "pins and needles" in hands. Sensation equal on both sides.

Trunk.—No wasting nor alteration of sensation. Cremasteric reflex sluggish; obtained once. Reflexes—Knee-joint markedly exaggerated both sides; not more on right than left. Ankle clonus both sides; greatest on left side.

Extensor phenomena absent on right side; faintly flexor on left side. Tensor fascia acts both sides.

Sphincters.—During the past week has not been able to hold his motions completely; has to have bed-pan as quick as possible because he cannot retain fæces.

The *urine* passes at times without the patient's knowledge. Urethral sensation present; no pain on micturition.

Sleeps and eats well.

Nov. 21.—Nystagmus; as before, no improvement. Pupils react to light and accommodation. Palate moves quite well. *Tongue.*—Tremulous when protruded.

Grasps.—Left weaker than right. Triceps reflex more pronounced on the right than left side.

Legs. — No wasting. Marked ankle-clonus, both sides, obtained by simply pushing the toe upwards. Clonus more easily obtained with the left ankle. Thigh-clonus very marked. Persistent twitching of the calf muscles after knee-joint or clonus of ankle obtained.

Gait.—Legs moved with difficulty; sole of foot glued to the ground, and when raised the heel comes down first; the toe scrapes the ground as the foot comes forward.

Nov. 28.—General condition as before.

Gait improved somewhat; does not walk with the feet so glued to the ground. The toes do not scrape the ground so much.

Nov. 30.—Urticarial eruption on the abdomen and lower part of the chest; disappeared largely at end of twenty-four hours. Still some itching patches left over left lumbar region.

Dec. 18.—Red patches about the right side from the sixth rib to the ninth; at the back, same; appear to correspond to distribution of intercostal nerves of right side; early herpes; rest of abdomen has a faint blotchy red colour.

Gait much improved; walks better; does not scrape the left foot along the floor as much as before.

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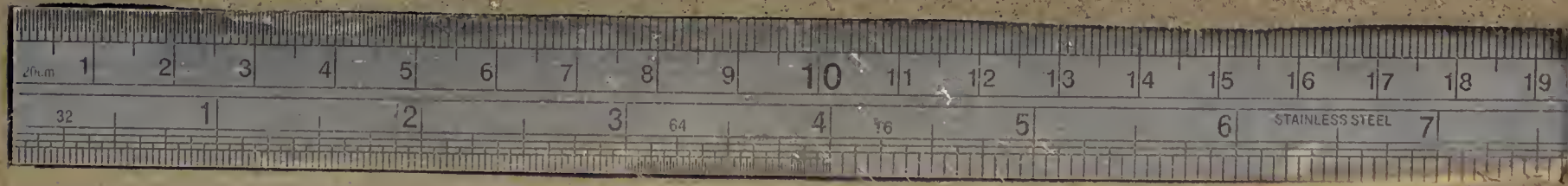
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